

**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Docket Number (Optional)

**42P22899**

Confirmation Number (Optional)

**5991**

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Application No.

10/580,986

Filed

May 25, 2006

January 31, 2011

Signature

Typed or printed

name Marilyn Bass

First Named Inventor

Bo Huang

Art Unit

2193

Examiner

Mitchell, Jason D.

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a Notice of Appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

NOTE: No more than five (5) pages may be provided.

I am the:

☐

applicant/inventor.

☐

assignee of record of the entire interest.

See 37 CFR 3.71. Statement under of 37 CFR 3.73(b) is enclosed.

(Form PTO/SB/96)

☒

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attorney or agent acting under 37 CFR 1.34.

Registration number if acting under 37 CFR 1.34 \_\_\_\_\_

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January 31, 2011

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NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required.

☒\*Total of 1 forms are submitted.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application for:

**Bo Huang, et al.**

Application No.: 10/580,986

Filed: May 25, 2006

For: **EVALUATION AND SELECTION OF  
PROGRAMMING CODE**

Examiner: Mitchell, Jason D.

Art Unit: 2193

Confirmation No.: 5991

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**PRE-APPEAL BRIEF CONFERENCE**

**REQUEST FOR REVIEW**

In response to the Final Office Action mailed November 1, 2010, in connection with the above referenced patent application, and in advance of the filing of an Appeal Brief, the Applicants respectfully request reconsideration of the rejection of all claims, in view of the following remarks.

Claims 1-7, 13-15, 17, 19, 21, 23 and 24 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ward et al. (U.S. Publication No. 2001/0032332) (Ward) in view of Lagergren (U.S. Publication No. 2004/0117779) (Lagergren). The Applicants believe that the Examiner has made a clear error in the rejection of these claims. To establish a *prima facie* case of obviousness, the Examiner must show that the cited references, combined, teach or suggest each of the elements of a claim.

Independent claim 1 recites a system for selecting a binary from a plurality of binaries, based on its overall figure of merit. The overall figure of merit of a binary is determined from evaluating two different characteristics of the binary, namely power consumption and code size. As recited in claim 1, the system includes *a binary selector that computes a plurality of overall figures of merit for the plurality of input binaries, respectively, wherein each overall figure of merit is computed as a function of the respective power consumption figure of merit and the respective code size figure of merit of that input binary. The selector compares the plurality of overall figures of merit with each other to select one of the plurality of input binaries as having the highest or lowest overall figure of merit.* The Examiner concedes that Ward does not disclose the above emphasized limitations but that Lagergren teaches these limitations in paragraph [0025] (see pages 5-6 of the Final Office Action). The Applicants submit that Lagergren does not teach the above emphasized limitations of claim 1.

Lagergren discloses the use of a size metric of the application code for performing optimization of the application code (paragraph [0016]). The size metric is calculated using so-called “factors,” together with their associated weights (paragraph [0025]). These factors may include basic block count, operation tuple count, register pressure, recognized patterns, preference for aggressive in-lining, maximum population count of a basic block live inset, control flow, and the number of code operations (paragraphs [0025], [0026], and [0028]). In other words, Lagergren teaches using code size to compute a figure of merit (i.e., size metric), and the factors used to compute it all relate to code size. Thus, Lagergren arguably teaches *a second evaluator to measure code size and compute a code size figure of merit based on the measured code size*, as recited in Applicants’ claim 1. At best, the method of calculating the size metric in Lagergren could arguably also be used to evaluate another characteristic of the application code, such as power consumption. However, it would not have been obvious to one

of ordinary skill in the art to go one step further and use the method taught in Lagergren to *compute an overall figure of merit as a function of the power consumption figure of merit and the code size figure of merit*, as recited in Applicants' claim 1.

The Examiner states that Lagergren teaches an "overall size metric" calculated as a function of "component size metrics" and that this parallels, and thus teaches, computing an overall optimization metric (i.e., an overall figure of merit) as a function of different component optimization metrics such as power consumption and code size (see page 3 of the Final Office Action). The Applicants respectfully disagree with this hindsight-based conclusion. The Examiner has not provided any concrete basis for his conclusion. In Lagergren, all of the components used to calculate the size metric relate to a single high-level characteristic of the code, namely code size. In contrast, the Applicants' claimed invention calculates an overall figure of merit from disparate and unrelated high-level characteristics. Power consumption and code size are two different high-level characteristics of a binary that have no apparent relation to each other. It would not have been obvious to one of ordinary skill in the art to compute an overall figure of merit based on two unrelated high-level characteristics using the technique disclosed in Lagergren, because all of the component size metrics in Lagergren are believed to relate to a single high-level characteristic, namely the code size. The Examiner has thus failed to establish a *prima facie* case of obviousness.

The Examiner further states that those of ordinary skill in the art would have been motivated to automate the process in Ward of selecting a binary that provides a desired overall optimization, by performing a calculation similar to that taught in Lagergren (see pages 6-7 of the Final Office Action). The Applicants, however, believe that the Examiner has failed to show proper motivation for modifying the Ward approach. Ward discloses that an application program is compiled with two or more different compiler options, and the resulting two or more binaries are then profiled. The results of the profiles are then analyzed to generate a set of useful solutions. The useful solutions are displayed to the user via a user interface to "allow the user to visually understand, inspect and manipulate compiler options to select compiler options for the program" (see Abstract). By plotting and displaying the "solution space curve," the Ward approach allows the user to visualize and therefore understand what performance metric tradeoffs are possible for an application (see paragraph [0040]). This helps the user understand the

improvements that are possible for the application (see paragraph [0042]). It thus seems unreasonable that one of ordinary skill in the art would consider “automating” the Ward process using the method of Lagergren, because the purpose of Ward, namely to allow the user to visualize and understand the tradeoffs of various compiler options, is a different aspect of code optimization than the computation of the highest or lowest *overall figure of merit* as recited in Applicants’ claim 1. Therefore, the Examiner has failed to establish a *prima facie* case of obviousness by failing to show a proper motivation for modifying Ward.

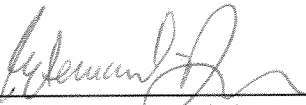
Arguments similar to those above apply to corresponding limitations of independent claims 13 and 21. Thus, the Applicants request that the Pre-Appeal Brief Conference Panel withdraw the rejection of the pending claims for at least the reasons stated above.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR, & ZAFMAN LLP

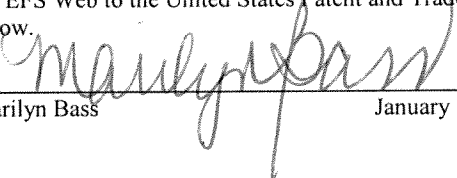
Dated: January 28, 2011

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**CERTIFICATE OF TRANSMISSION**

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Marilyn Bass January 31, 2011